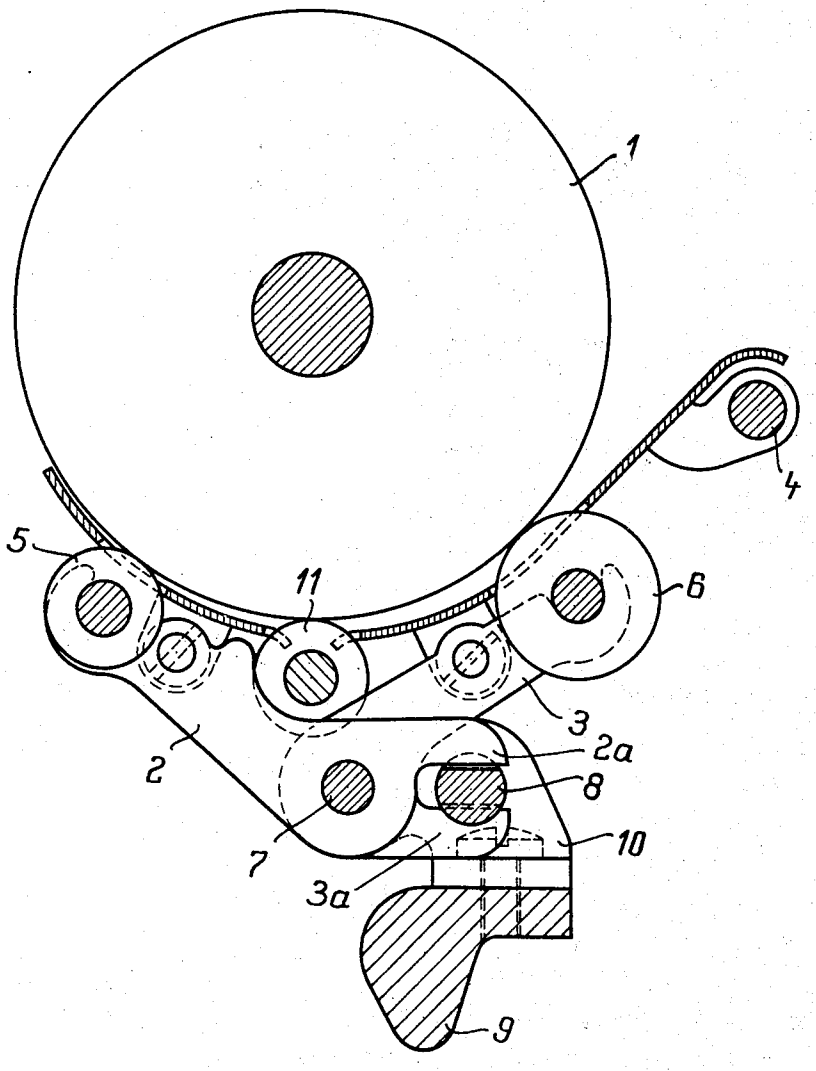
Oct. 25, 1938. A. SALZBERGER 2,134,343

DEVICE FOR VARYING THE STRENGTH OF THE TYPE IMPRESSION IN TYPEWRITING OFFICE MACHINES

Filed Nov. 26, 1937 3 Sheets-Sheet 1

Fig. 1



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Fig. 2

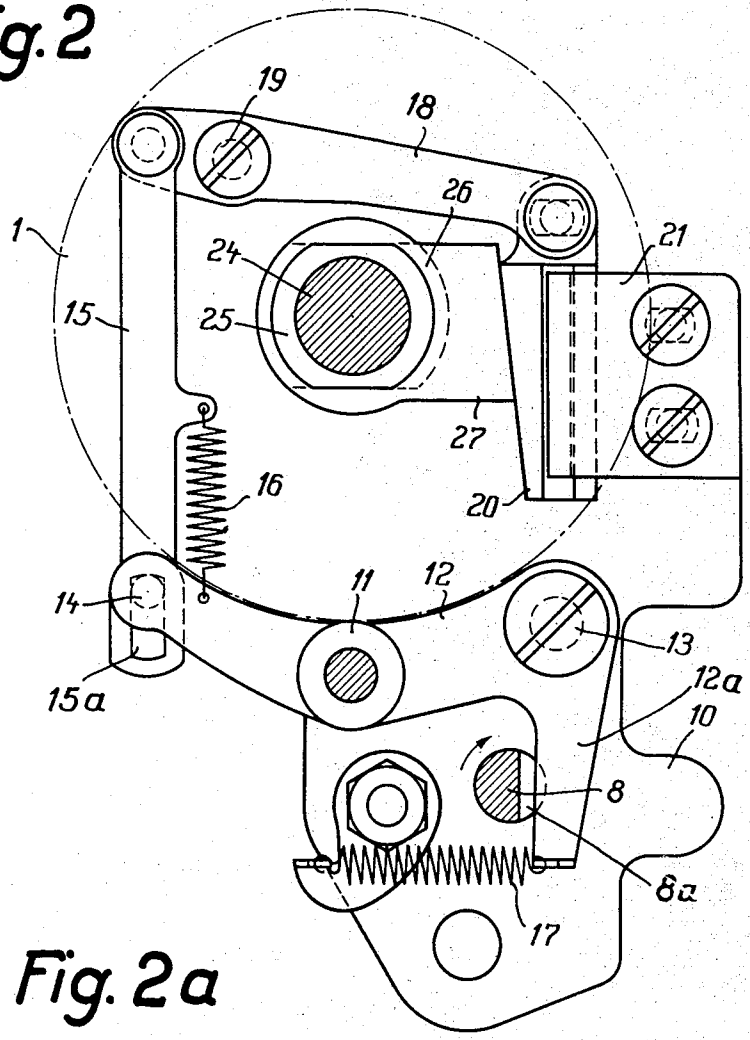
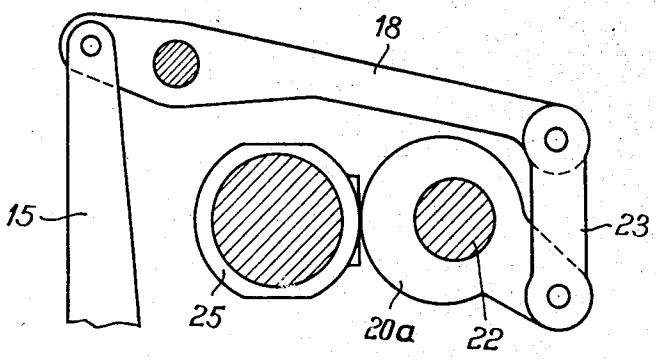


Fig. 2a



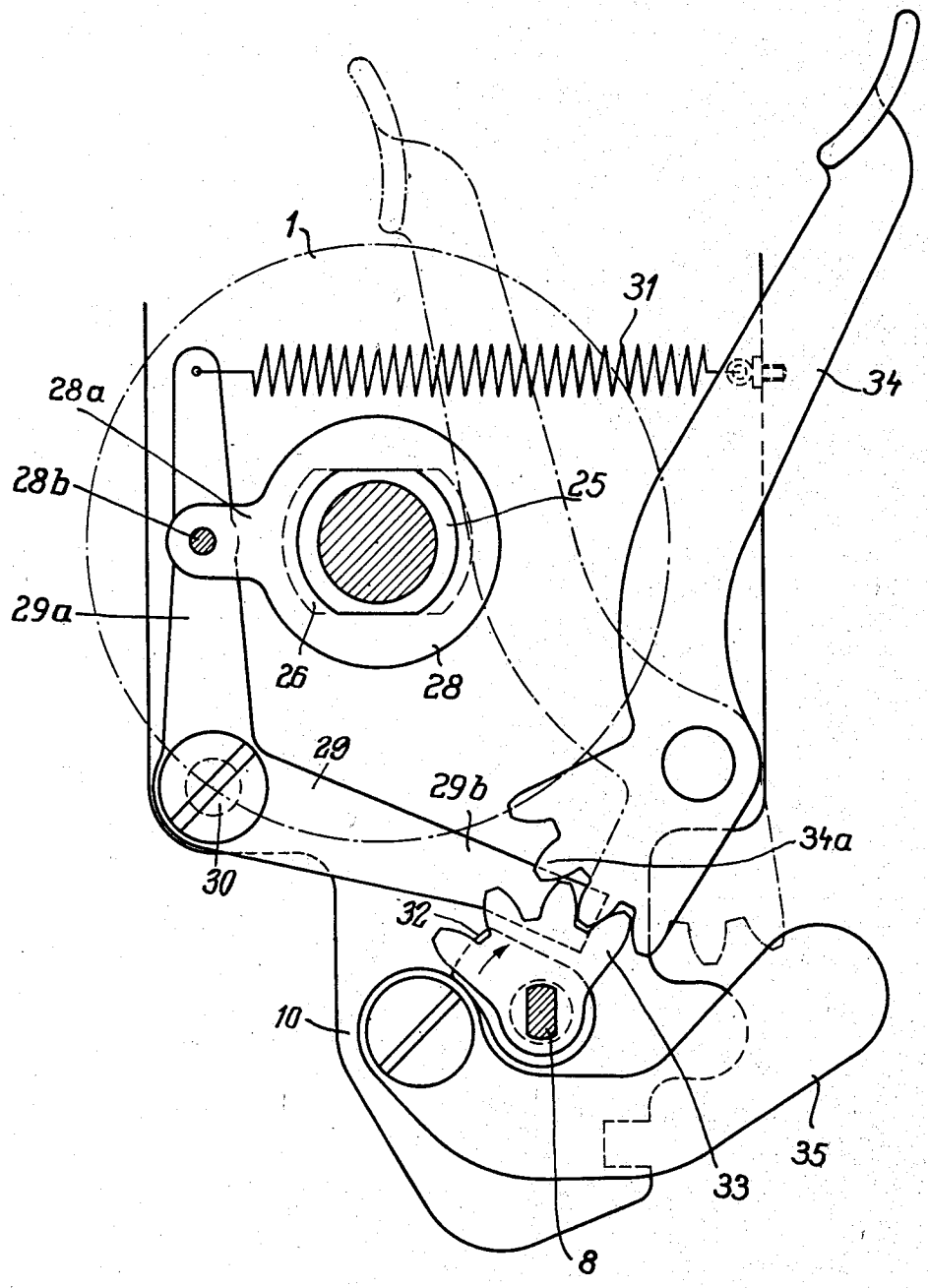
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DEVICE FOR VARYING THE STRENGTH OF THE TYPE IMPRESSION IN TYPEWRITING OFFICE MACHINES

Filed Nov. 26, 1937 3 Sheets-Sheet 3

Fig. 3



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2,134,343

DEVICE FOR VARYING THE STRENGTH OF THE TYPE IMPRESSION IN TYPEWRITING OFFICE MACHINES

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In Germany December 11, 1936

7 Claims. (Cl. 197—149)

With machines with noise-dampened type impression, especially with machines having a rigid type impression point, in which there are, thus, no elastic type levers able to oscillate beyond the end position proper or no yielding intermediate members between the writing surface of the types and the surface receiving the impressions, it is indispensably requisite to provide means rendering it possible to adjust or re-adjust the platen in the direction of the type impression.

The known devices for the object in view must be selectively adjusted with the aid of an operating grip, may be manually with the aid of a graduated scale, which necessitates a certain amount of consideration and attention and includes the possibility of faculty adjustments, which can entail undesired effects in that either obscure imprints or an insufficient number of copies or, perhaps, no imprints and, therefore, also no copies at all are obtained. If the adjustment is in error in the opposite sense and does not provide a platen position appropriate for a thick layer of paper, the imprint will be unduly strong as the type will strike the paper too forcefully, and this places an unnecessary burden on the mechanism of the machine.

It has already been endeavored to obviate the above-mentioned drawbacks by the provision of a touching member which when held in contact with the paper, ascertains the thickness of the same and readjusts the platen automatically, for instance by the intermediary of a rack and a pinion. But also this arrangement suffers from a drawback consisting therein that the entire readjusting resistance which increases considerably with the breadth and the weight of the platen slide must be overcome by the rods. The readjustment is subject to checkings and delicate work is, therefore, not possible, and the strong pressing-on pressure, or the adjustment-pressure respectively, makes it difficult to introduce larger piles of paper, if at all, and there exists also the danger of marking, that is to say, the pressure which the touching member exerts becomes visible on the copies through the carbonized sheets.

Now, the object of the present invention is to provide a device which requires for the adjustment of the platen only a slight pressure adapted to be accommodated to the introduction of the paper and to the feeling action of the touching member. The object in view is attained by means of a feeling or touching member co-operating with a releasable auxiliary power holding the platen in its readjusted position and merely preparing or initiating the readjustment without itself shifting the platen. The arrangement is preferably so that the auxiliary power is designed as a power accumulator, for instance an elasticity accumulator, which can be thrown into and out of action by means of a grip also otherwise to be used when the machine is operated, which grip can be, for instance, the releasing grip for the lower paper guiding member, and in order to simplify the arrangement the devices to be actuated by said grip may be so designed that successively first said lower paper guiding member is released then the platen is withdrawn from its working condition, and finally the member directly effecting the readjustment of the platen is moved into its initial position, whereas on the return way said three operations are repeated in the reverse succession.

Value is also placed upon the possibility of shifting the platen within the platen slide frame so as to obviate shifting it together wtih the slide frame which constitutes a checking weight.

The invention is illustrated diagrammatically and by way of example on the accompanying drawings on which Figure 1 is a transverse section through the lower paper guide members, combined with a pressing-on roller serving as touching member. Figure 2 is a side-view of the adjusting rods for the platen. Figure 2a shows a modified constructional form of the upper half of Fig. 2 and Figure 3 illustrates likewise in side view the releasing drive for the lower paper guide members, combined with the device for withdrawing the platen.

The paper guiding device chosen by way of example and being illustrated in Fig. 1 is located below the platen 1 and consists of a front and a rear sheet-metal plate, of which the front plate is secured to an arm 2, whereas the rear plate is hinged to an arm 3. This rear plate is, besides, turnably suspended from a bolt 4 located in the slide frame. Said paper guiding sheet-metal plates are provided with the usual recesses or slots through which the paper guiding rolls 5 and 6 pass. Each of these rolls is supported on an axle supported in turn by the extreme ends of the arms 2 and 3 supported, again in turn, by a shaft 7 common to them. Each of said rolls has, furthermore, a lug 2a, or 3a respectively, extending counter to the respective arm, as in Fig. 1, the lug 3a being located below the lug 2a. The shaft 7 is supported in the frame of the paper slide. Between the two lugs is a releasing shaft 8 which is provided with two transverse recesses which receive the said lugs, as shown. 9 denotes

a running rail which is screwed to the bottom face of the slide frame 10. I abstain from entering into details concerning said rail, as it does not pertain to the invention proper.

Between the two paper guiding rollers 5 and 6 is provided a third or additional roller 11 (Figs. 1 and 2) which is the pressing on rollers and is supported in the middle portion of the longer arm 12 (Fig. 2) of a bell-crank lever attached by means of a bolt 13 to the slide frame. At the free end of said bell-crank lever arm is a pin 14 engaging an oblong hole 15a of a vertical rod 15 connected with the said lever arm by a helical tensile spring 16 (Fig. 2). The pin 14 is normally held by said spring in the upper end of said hole. Also the shorter arm 12a of the bell-crank lever is subjected to the action of a helical tension spring 17 whereby the roller 11 is continually held in contact with the platen 1. The shaft 8 has not only the two transverse slots receiving the lugs 2a and 3a, but there is in it a third transverse slot 8a receiving the lever arm 12a, as in Fig. 2.

Above the axle 24 of the platen 1 is a double-armed lever 18 which is supported on a bolt 19 screwed into the slide frame. The lever 18 is connected at one end with the vertical rod 15 and at the other end with a wedgeshaped slide 20 guided in a guide member 21 affixed to the slide frame.

Instead of said wedge-shaped member 20 an eccentric disk 20a (Fig. 2a) may be used. This disk is supported on a bolt 22 likewise screwed into the slide frame and is connected with the lever 18 by means of a link 23. The effect of this arrangement is the same as with the example shown in Fig. 2.

The axis of the platen 1 is encompassed by a sliding bearing 25 which can be shifted in an oblong aperture 26 (indicated by dotted lines in Figs. 2 and 3) provided in the platen slide frame. On the side opposite the wedge-shaped member 20, the oblique face of which is located opposite the sliding bearing 25, this latter has likewise an oblique lateral face, the obliquity of which corresponds with the obliquity of the inclined face of the member 20, as shown in Fig. 2.

The sliding bearing 25 of the platen axle is provided with a flange 28 from which projects a lug 28a connected by a pivot 28b with the arm 29a of a bell-crank lever 29 which is supported on a bolt 30 supported in turn in the slide frame. The upper end of said lever arm is connected with a comparatively strong helical tensile spring 31, the other end of which is affixed to said frame. The other arm (29b) of the bell-crank lever contacts at its free end with a cam 32 secured to the shaft 8 provided, besides, with a toothed segment 33 meshing with another toothed segment 34a forming the lower end of a double-armed lever 34, the other arm of which projects upwardly (Fig. 3) and constitutes a manually operable grip. Below the toothed segment 33 is a crooked arm 35 which serves for the changing-over of the, as it were, inner platen slide frame 10 within an outer slide frame (not shown in the drawings) that transmits to the platen the driving power and causes its step-by-step movement in horizontal direction. The arm 35 and the outer slide frame just mentioned do not form parts of the invention and I therefore do not enter into details concerning them. I emphasize, however, that as regards the readjustment of the platen, it is important to abstain from changing the position of the guide rail for the said outer slide-frame in that this rail is of fundamental value for several operations which will be dealth with hereinafter.

The manner of operation of the device is as follows:

When the sheet to be written upon has been introduced into the machine it depresses the pressing-on roller corresponding to the thickness of the paper and turns thereby the bell-crank lever 12 (Fig. 2) on its bolt 13. The pin 14 which is located at the free end of the longer arm of said lever and engages the oblong hole 15a of the rod 15 is moved downwardly in said hole and simultaneously therewith the springs 16 and 17 are correspondingly tensioned.

Now the grip 34 (Fig. 3) which is generally used for straightening the sheet shoved into the machine until having arrived at the place of writing is swung forwardly from the position shown in full lines to the position shown in dotted lines whereby the toothed segments 34a and 33 are turned by about 90°, as is also the shaft 8. This causes three successive operations, viz:

(a) The shaft 8 releases the lower paper guiding member, that is to say, the flattened portions of said shaft act on the lugs 2a and 3a of the arms 2 and 3 (Fig. 1) and turn them on their common supporting bolt 7 whereby the paper guiding sheet-metal plates and with them the paper guiding rollers 5 and 6 are withdrawn from the platen 1.

(b) The eccentric cam 32 located upon the shaft 8 presses against the arm 29b of the bell-crank lever 29 (Fig. 3) and turns it counter to the pull of the spring 31 whereby the arm 29a of said lever draws the platen forwardly into an end position, or a position of rest respectively, by the intermediary of the members 28b, 28a and 28 and whereby at the same time the wedge 20 (Fig. 2) is released from the action of the member 27 so that it can be lifted by the lever 18 and the rod 15 by the pull of the spring 16. Simultaneously therewith the pin 14 reassumes its original position in the upper portion or end of the hole 15a of the rod 15.

(c) The downwardly directed short arm 12a (Fig. 2) of the bell-crank lever 12 which arm engages a transverse slot of the shaft 8, is turned by this shaft counter to the pull of the spring 17 whereby the lever arm 12 is lifted beyond its usual adjusted position and moves, in turn, under the pull of the spring 16, the members 15, 18 and 20 into their end position.

When the grip 34 is being moved back into its original position, after the straightening of the sheet of paper relatively to the place of writing, all members having been actuated when said grip had been swung into the position shown in dotted lines in Fig. 3 get now back into their former position in the reverse succession. The lever arm or touching lever 12 always produces that adjustment of the wedge-shaped member (Fig. 2) which corresponds to the thickness of the sheet of paper introduced into the machine. The tensile spring 31 draws the sliding bearing 27 firmly against the oppositely located oblique face of the wedge 20 and retains this in its position whereby an unintended change of the position in the platen is securely prevented. Finally, the lower paper guiding member is again laid against the platen.

Finally, concerning the entire arrangement and combination of the parts shown and described, it is to be noted that the rods and arms and levers shown in Figs. 2 and 3 are to be provided at both sides of the machine, that is to say, symmetrically, in an inconspicuously man-

ner, and as regards especially the feeling or touching roller 11 it is suited to the purpose in view to subdivide it or, in other words, to provide several such rollers (co-axially) and distribute the individual parts or rollers along the platen.

What I claim as new and desire so secured by Letters Patent of the United States is:

1. In a typewriting machine, the combination with a platen, and means supporting said platen for movement to vary the strength of the type impression, of power means for moving said platen towards one end position of adjustment, an adjustable stop for limiting movement of the platen by said power means, means operable manually to displace said platen from said stop in opposition to said power means, and setting means operable during displacement of said platen from said stop for adjusting said stop in accordance with the impression sheets carried by said platen, said setting means including a feeler contacting the impression sheets.

2. In a typewriting machine, the combination with a platen, and means supporting said platen for movement to vary the strength of the type impression, of an adjustable stop for determining the position of said platen, yielding means tending to retain said platen against said stop, means operable manually to displace said platen from said stop, a feeler for contacting the impression sheets carried by the platen, and means actuated by said feeler in the interval between movement of the platen in opposite directions by said manually operable means and said yielding means for setting said stop in accordance with the thickness of the impression sheets.

3. In a typewriting machine, the combination with a platen, means supporting said platen for movement to vary the strength of the type impression, rollers for holding impression sheets to said platen, and means manually operable to displace said rollers to facilitate adjustment of the impression sheets on said platen; of means operable by said manually operable means, when actuated to displace said rollers, to adjust said platen to a position appropriate for the impression sheets carried by the platen, said last means including a feeler for contacting the impression sheets.

4. The invention as claimed in claim 3, wherein said platen adjusting means includes spring means yieldingly urging said platen in one direction, stop means for limiting such movement, means controlled by said feeler for setting said stop means, said setting means being inoperative when said platen is held to said stop means by said spring means, and means actuated by said manually operable means to displace said platen from said stop means, thereby to render said setting means operative.

5. In a typewriting machine, a platen, means supporting said platen for movement to vary the strength of the type impression, stop means for determining the position of said platen, spring means normally retaining said platen in the position determined by said stop, and manually operable means for displacing said platen in opposition to said spring means and resetting the stop means, said manually operable means including a feeler contacting the impression sheets carried by said platen.

6. In a typewriting machine, a carriage, a platen, means supporting said platen for movement to vary the strength of the type impression, spring means tending to displace said platen into the end position corresponding to maximum paper thickness, cooperating stop members on said platen and carriage for limiting the displacement of said platen by said spring means, means tending to displace the stop member of the carriage into a position corresponding to maximum paper thickness, said last means being inoperative to displace its associated stop member so long as said stop members are held in engagement by said spring means, a feeler yieldingly contacting the paper and limiting displacement of the carriage stop member, and means operable manually to perform the cycle of displacing said platen into inoperative position in opposition to the force of said spring means, moving said feeler away from the platen, releasing the feeler to permit its return to contact with the paper, and releasing the platen to permit its return by said spring means.

7. The invention as claimed in claim 6, wherein paper guides are provided adjacent said platen, and said manually operable means moves said paper guides from the platen before displacing the platen, and returns said guides to normal position after releasing the platen.

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